CUMULATIVE EFFECTS ANALYSIS PROTOCOL

(BASED ON CEQ GUIDANCE, JANUARY 1997)

INTRODUCTION

How do you analyze and document cumulative effects of a proposed action and alternatives? This analysis protocol tracks the guidance provided by the Council on Environmental Quality, and ensures that all appropriate topics are taken into account during the identification and analysis of cumulative effects.

CUMULATIVE EFFECTS ANALYSIS PROTOCOL

PART I: WHAT DOES THE GUIDANCE REQUIRE?

Step One: Identify Significant Cumulative Effect Issues

Resource(s) Affected Cumulatively:

Type(s) of Cumulative Effects Anticipated:

Single source additive:	Single source interactive:
Multiple source additive:	Multiple source synergistic:

Step Two: Identify the Geographic Scope of Analysis:

Geographic Boundaries for each of the affected resources, ecosystems, and human communities (attach map)

Step Three: Identify the Timeframe for the Analysis

Temporal Boundaries for each of the affected resources, ecosystems, and human communities (past, present, future)

Step Four: Projects to be Analyzed (add extra sheets if necessary):

Project Name	Project Sponsor	Project Time Frame

Primary or Special Analysis Method(s) Used (describe specific method):

Significance Threshold and Criteria (cite scientific basis):

Step Five: Resource Characterization:

- Response of each of the affected resources, ecosystems, and human communities to change
- Capacity of each of the affected resources, ecosystems, and human communities to withstand stresses

Step Six: Stresses Affecting Resources, Ecosystems, and Human Communities:

Description of Stress(es)

Relationship to Regulatory Threshold(s)

Step Seven: Description of Baseline Condition:

Step Eight: Identify Cause-Effect Relationships (attach network or system diagram):

Step Nine: Determine the Magnitude and Significance of Cumulative Effects:

Step Ten: Modify or Add Alternatives and Required Mitigation:

Step Eleven: Monitor Cumulative Effects of Selected Alternative and Adapt Management if Necessary:

WHAT GOES WHERE?

The CEQ guidance suggests that certain specific tasks be accomplished during specific stages of project scoping and environmental analysis, and that certain specific items be included in the various parts of an EIS (or EA, as appropriate). That guidance is summarized in the following protocol.

PART II: WHAT GOES WHERE?

Scoping

Tasks:

1. Consult with agencies and other interested persons concerning cums issues

2. Evaluate agency planning, the proposed action and alternatives (including no-action) to identify cums issues

3. Evaluate the importance of the cums issues to identify additional resources, ecosystems and communities that should be included in the analysis

4. Identify geographic boundaries of the analysis for each affected resource, ecosystem, or community

5. Identify a time frame for the analysis for each affected resource, ecosystem, or community

6. Determine which other actions should be included in the analysis, and agree among the interested parties on the scope of data to be gathered, methods to be used, how the process will be documented, and how the results will be reviewed

Results:

1. List of cumulative effects issues

2. Geographic boundary and time frame for analysis of each affected resource

3. List of actions contributing to each cumulative effects issue

4. Determine data needs related to Affected Environment and Environmental Consequences, including resource capabilities, thresholds, standards, guidelines, and planning goals

Affected Environment:

Tasks:

1. Identify common cumulative effects issues within the region

2. Characterize the current status of the resources, ecosystems, and human communities identified during scoping

3. Indentify socioeconomic driving variables and indicators of stress on these resources

4. Characterize the regional landscape in terms of historical and planned development and the constraints of governmental regulations and standards

5. Define a baseline condition for the resources using historical trends

Results:

1. Date on resources, ecosystems and human communities affected by the proposed action and alternatives (including no action)

2. Data on environmental and socioeconomic stress factors

3. Data on governmental regulations, standards, and plans

4. Data on environmental and social trends

Environmental Consequences:

Tasks:

1. Select the resources, ecosystems, and human communities considered in the project-specific analysis to be those that could be affected cumulatively

2. Identify the important cause-effect relationships between human activities and resources of concern using a network or systems diagram that focuses on the important cumulative effect pathways

3. Adjust the geographic and time boundaries of the analysis based on cumulative cause-effect relationships

4. Incorporate additional past, present, and reasonably foreseeable actions into the analysis as indicated by the cumulative cause-effect relationships

5. Determine the magnitude and significance of cumulative impacts based on context and intensity (40 CFR 1508.27)

6. Modify or add alternatives to avoid, minimize, or mitigate cumulative impacts

7. Determine the cumulative impacts of the selected alternative, including mitigation and enhancement measures

8. Explicitly address uncertainty (40 CFR 1502.22), and reduce it as much as possible through monitoring and adaptive management

Results:

1. Descriptions of resources, ecosystems, and human communities affected cumulatively by each alternative, including no action

2. A comparison matrix showing the cumulative impacts for each alternative (can also be placed in Chapter 2, Alternative)

3. Description of a mitigation program to avoid, minimize, or mitigate cumulative impacts of the selected alternative

4. Description of a monitoring program, including measurable indicators, timeframe, spatial scale, means of assessing causality, means of measuring mitigation efficacy, and provisions for adaptive management for the selected alternative